with the Author's regards.

22.

Pathological Condition of the Fallopian Tubes

by

Arthur H. N. Lewers

From Obstetrical Soc. 1887 XXIX

ON THE FREQUENCY

OF

PATHOLOGICAL CONDITIONS OF THE FALLOPIAN TUBES.

AS DETERMINED BY OBSERVATIONS IN THE POST-MORTEM ROOM OF THE LONDON HOSPITAL.

BY

ARTHUR H. N. LEWERS, M.D.Lond.,
ASSISTANT OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

Read May 4th, 1887.

[*From Volume XXIX of the 'Transactions of the Obstetrical Society of London.'*]

LONDON:
PRINTED BY
ADLARD AND SON, BARTHOLOMEW CLOSE.

1887.

ON THE FREQUENCY OF PATHOLOGICAL CONDITIONS OF THE FALLOPIAN TUBES.

As determined by Observations in the Post-mortem Room of the London Hospital.

By Arthur H. N. Lewers, M.D.Lond.,

ASSISTANT OBSTETRIC PHYSICIAN TO THE LONDON HOSPITAL.

(Received November 26th, 1886.)

(*Abstract.*)

The present paper is the outcome of observations made on the pelvic organs in a series of 100 cases in the post-mortem room of the London Hospital.

As is well known, very contradictory opinions have been held as to the absolute frequency with which dilatation of the Fallopian tubes—hydrosalpinx, pyosalpinx, and hæmatosalpinx—occurs among the general population. Recently Dr. Henry Coe in his paper "Is Disease of the Uterine Appendages as frequent as it has been represented to be?" ('American Journal of Obstetrics,' June, 1886) says, "Actual disease of the tubes is far less frequent than is generally believed." Others, on the contrary, are of opinion that these conditions are of frequent occurrence. The question of the absolute frequency of disease of the tubes is one that could only be settled by observations in the dead-house of a general hospital.

Cases where the contents of the dilated tubes were not distinctly purulent or were not composed of blood, have here been classed as hydrosalpinx.

Disease of the Fallopian tubes, restricting the expression to pyosalpinx, hæmatosalpinx, and hydrosalpinx, was met with in seventeen cases out of the one hundred examined.

A detailed description of each specimen is given in the paper,

and a table classifying the chief points of interest in these seventeen cases has been added.

The present paper is the outcome of observations made on the pelvic organs in a series of 100 cases in the post-mortem room of the London Hospital.

During a period of thirteen months I endeavoured either to be present myself at the post-mortem examination of every woman dying in the hospital on whom an examination was permitted, or, if unable to be present, to have the pelvic organs removed *en masse*, and kept for me to see.

In either case the plan adopted was to take away the entire contents of the pelvis in a large jar and examine them subsequently. Each specimen, therefore, was described more in detail, and after a more leisurely examination than would have been possible in the post-mortem room.

As might have been expected, the investigation led to meeting with many interesting conditions other than those connected with the Fallopian tubes, but in this paper it is only intended to mention pathological conditions of the tubes such as are easily recognisable by the naked eye, and such as therefore would be easily identified during life by abdominal section.

As is well known, very contradictory opinions have been held as to the absolute frequency with which dilatation of the Fallopian tubes—hydrosalpinx, pyosalpinx, and hæmatosalpinx—occurs among the general population.

So far as I know there are no statistics giving the percentage frequency of these conditions.

Recently Dr. Henry Coe, at the conclusion of his paper entitled 'Is Disease of the Uterine Appendages as frequent as it has been represented to be?' published in the 'American Journal of Obstetrics' for June, 1886, gives as one of his deductions, "Actual disease of the tubes is far less frequent than is generally believed."

Dr. Coe does not, however, adduce any statistical evidence in support of this opinion.

The question of the absolute frequency of disease of the Fallopian tubes is one that can only be settled by observations in the dead-house of a *general* hospital.

Of the 100 cases referred to in this paper some came from the medical, some from the surgical, and a few from the obstetrical wards of the hospital.

Cases where the contents of the dilated tubes were not distinctly purulent, and were not composed of blood, have been classed as *hydro*-salpinx.

Disease of the Fallopian tubes, restricting the expression to pyosalpinx, hæmatosalpinx, and hydrosalpinx, was met with in seventeen cases out of the 100 examined.

The following is a description of each of the specimens, with a note of the associated morbid conditions, and the history of the patient, so far as it could be ascertained.

Case 1. *Left hydrosalpinx.*—The *left Fallopian tube* presents at its outer part an oval swelling, the size of a large walnut. It contains clear yellow fluid. Part of the swelling is adherent to the sigmoid flexure. The outer end of the tube is firmly adherent to the ovary, and the fimbriated extremity cannot be distinguished.

The dilated portion of the tube does not communicate with the part of the tube internal to it. Attached to the inner surface of the dilated part are two hard white bodies, the size of a large pin's head.

The *right Fallopian tube* in its outer half is wider than normal; its fimbriated extremity cannot be distinguished, as the outer end of the tube is lost in a mass of adhesions to the right ovary.

There are old membranous adhesions, most extensive in the right posterior quarter of the pelvis.

There are broad ligament cysts, the size of currants, containing clear fluid on the right side.

Uterus.—The sound passes two and one eighth inches. There is a mucous polypus, five eighths of an inch long,

springing from the mucous membrane of the posterior wall near the point of entrance of the left Fallopian tube.

The other morbid conditions found were: *Mitral disease, ascites, œdema of legs, and enlargement of the liver and kidneys.*

The patient was aged 51, married, and had had one child and one miscarriage. She was admitted complaining of pain in the left side and back of six months' duration, and of dropsy. There was a history of excessive beer-drinking.

Case 2. *Right pyosalpinx; left hydrosalpinx and hæmatosalpinx.*—This case is the only one of those brought forward where the actual condition present is open to doubt. It appeared to be a *right pyosalpinx*, with a *hydrosalpinx*, and a *hæmatosalpinx* on the left side. A detailed description of the specimen is given, which seems to warrant this view.

Pelvic organs.—The pelvic viscera are matted together by extensive firm adhesions. Only a small portion of the uterus appears on looking at the pelvic contents from above. The left side of the uterus from the point of entry of the left Fallopian tube is adherent to what at first sight looks like a portion of enormously distended bowel. This adhesion extends over the left longitudinal half of the posterior surface of the uterus. Between the points of entry of the Fallopian tubes there is a mass of fat, the size of a hen's egg, adherent to the fundus. On turning this mass forward, a point is seen behind the uterus, apparently Douglas's pouch. The surface of the pouch thus exposed is covered with sloughy greenish material.

On making a vertical antero-posterior section through the middle of the uterus, what was thought to be Douglas's pouch is seen to be a cavity containing pus, connected with the upper posterior surface of the uterus, chiefly on the right side; and below this is seen what is really Douglas's pouch. The peritoneum of the latter is greenish

and tending to separate from the subjacent tissue, which is infiltrated with watery fluid; but the peritoneum has not lost its lustre. The abscess cavity described communicates with Douglas's pouch by a small aperture. The cavity of the abscess is about the size of a hen's egg.

The mass on the left side (that which at first sight looked like distended bowel) is seen on further examination not to be intestine at all.

On section it is found to have three compartments, one the size of a large orange, one the size of a Tangerine orange, and one the size of a plover's egg. These cavities are shut off from one another. The two larger ones contain a brownish watery fluid, the small one contains a recent "currant-jelly" clot, non-adherent. One of the larger cavities is in communication by a small oval opening with a tube which can be traced a little distance parallel to the left side of the uterus, and is then lost.

Starting from the uterus the left Fallopian tube can only be traced a distance of an inch; and it cannot be traced to the tube just mentioned, leading from one of the cavities containing brown watery fluid. No trace of the ovaries can be found.

It seems most probable that the cavity containing pus, the wall of which is attached to the back of the uterus, and which communicates with Douglas's pouch by a small aperture, is a right pyosalpinx. It seems at all events not unlikely that the case was really somewhat as follows: Right pyosalpinx which burst, setting up acute general peritonitis. As regards the cysts on the left side of the uterus, there is no absolute certainty that they *are* distended tube. No trace of the tube, however, can be found elsewhere, and the external appearance of the mass is similar to that of specimens of dilated tube where no doubt existed.

The other morbid conditions present were:—General purulent peritonitis, old peritonitis, acute pericarditis and right pleurisy, œdema of the lungs.

The patient was 40 years of age; was admitted April

April 17th, 1885, for strangulated hernia (femoral), and discharged, apparently cured, May 8th, 1885.

Re-admitted September, 1885, thought to be suffering from another strangulated hernia—inguinal. At the operation, however, only omentum was found, and on opening the peritoneum it is to be noticed that pus came out. This to some extent confirms the view that the case was one of ruptured pyosalpinx.

The patient died seven hours after the operation.

Case 3. *Double hydrosalpinx. Pelvic organs.*—The upper part of the vaginal mucous membrane is studded with numerous shallow, sharply-defined ulcers. There is old pelvic peritonitis. The upper two thirds of the mucous membrane of the body of the uterus are congested, the lower third is pale. On each side the Fallopian tubes are dilated into cysts the size of hens' eggs, that is the size of the part most dilated, but there are smaller swellings of size intermediate between this and the undilated parts of the tubes. On both sides the swellings communicate freely with the uterus. The distal openings of the tubes are closed. On the right side the ovary can be identified ; it is adherent to the part of the right Fallopian tube where this is most dilated. No trace of the left ovary can be found. Both dilated tubes contain clear yellow fluid.

The other morbid conditions present were :—Cirrhosis of the liver, perihepatitis, ascites, right lung small, contracted, pleura adherent, purulent lymph on diaphragmatic pleura.

The patient was 50 years of age, wife of a sailor, and had been a washerwoman thirty years. She was in the hospital four or five years before, suffering from "disease of the uterus." Among her other symptoms it is noted she complained of great pain in the left iliac region.

Case 4. *Double hydrosalpinx. Pelvic organs.*—There are numerous membranous adhesions extending from the

left half of the upper border of the uterus and left broad ligament to the bladder. There are adhesions of omentum to the left broad ligament and posterior surface of uterus. Old adhesions are seen between the adjacent coils of the dilated tubes, and also between the latter and adjacent parts of the uterus, especially the sides and posterior surface. There are old adhesions in Douglas's pouch.

The *right Fallopian tube* is dilated so as to form a swelling one inch in diameter, united to the corresponding ovary by dense adhesions. On opening the dilated tube its contents are found to be turbid, but not purulent. The cavity is closed towards the ovary. A fine bristle passed from the uterus enters the dilated tube with some difficulty.

The *left Fallopian tube* is similarly dilated; a bristle passed from the uterus enters the dilated part easily. The dilated part is closed externally, and is adherent to the ovary.

Other morbid conditions.—There was a small sacculated aneurysm on the posterior aspect of the transverse arch of the aorta, pressing on the trachea half an inch above its bifurcation. The left recurrent laryngeal nerve was compressed.

The patient was 44 years of age, and had suffered from emaciation and attacks of dyspnœa for twelve months; before that her health had been good. Left vocal cord paralysed. Increase of dyspnœa. Tracheotomy. Death.

Case 5. *Double pyosalpinx.*—The specimen from this case was shown at the meeting of the Society in December, 1885, and a full description of it is published in the 27th volume of the Obstetrical Society's 'Transactions.' Rupture of the tubes was in this case the cause of death.

Case 6. *Hydrosalpinx (right); hæmatosalpinx (left). Pelvic organs.*—The *left Fallopian tube* is dilated in its outer half, the general dilatation being subdivided into three communicating compartments. The uppermost division is horizontal, the lowest vertical (this latter measures one and

a quarter inches by one inch). The middle division is the size of a grape, and comes off from the lower and anterior surface of the vertical division. The whole of the dilated part of the tube has a chocolate-red colour. Attached to the lower and anterior part of this third (smallest) division just mentioned is a cyst the size of a small grape, not communicating with the dilated tube. The contents of the dilated tube are fluid, and an impulse can be transmitted along it to within an inch and a half of the uterus, but not nearer. The posterior surface of the left broad ligament is studded with small sessile cysts, the largest the size of a large pin-head. One, evidently of the same nature, but larger (one eighth of an inch in diameter) is seen above the undilated part of the Fallopian tube. No trace of the fimbriated extremity of the tube is to be seen. The dilated tube contains chocolate-red fluid; its wall is thin and semi-transparent. There are numerous old adhesions between the left ovary and adjoining broad ligament.

The *right Fallopian tube* is dilated to within one and five-eighths of an inch of the uterus. The dilated part, as on the opposite side, is indistinctly subdivided into three communicating compartments. No trace of the fimbriated extremity of the tube is to be seen. The outer end of the dilated portion is firmly adherent to the ovary. The dilated tube contains thin yellow fluid; its wall is thin and semi-transparent. The largest subdivision of the dilated tube measures one and a quarter inches by one inch. There are minute sessile cysts on the surface of the right broad ligament like those described on the left side. It is not possible to pass bristles from the uterus into the dilated portions of the tubes; whether actually occluded, as seems most likely, or not, they were practically so, as it was impossible by pressure on the dilated tube to drive its contents along the tube into the uterus. There is a partly calcified, subperitoneal fibroid in the anterior wall of the body of the uterus about the size of half a walnut. There are numerous old adhesions on the anterior and posterior

surfaces of the uterus. The cause of death was perforation of the cæcum.

The patient was 48 years of age, and had had six children. She had for a long while suffered from irregularity of the bowels, and there had been absolute constipation for at least ten days before admission. She had constant vomiting for some time before death.

Case 7.—Both tubes dilated. Contents milky.

Pelvic organs.—Both Fallopian tubes are dilated, containing milky fluid.

The *right tube* appears to be patent towards the uterus, but by a very fine tortuous channel. The outer end is closed. The inner aspect of the dilated part of the tube is moderately smooth for the most part, but here and there are a few large longitudinal ridges, much larger than are usually seen on the inner aspect of dilated tubes. Near the outer extremity on the inner surface of the dilated part of the tube are seen numerous deep-red, solid bodies, some sessile, some polypoid, varying in size from that of a split pea to that of a pin's head. The ovaries are to be seen on both sides.

The left Fallopian tube is similarly affected. There is extensive old pelvic peritonitis.

Other morbid conditions.—Left pleura adherent. Right lung much congested. Capsules of kidneys adherent. Pus in cellular tissue of right leg.

The patient was 50 years of age, married, and had had six children. She had sudden pain in both legs four days before admission. Rigors and high temperature (103°) falling to subnormal before death. The patient had some time back had rheumatic fever, and there was a systolic mitral murmur.

Case 8. *Pyosalpinx* (*right*).—Left tube dilated but empty.

Pelvic organs.—There is extensive old pelvic peritonitis, almost wholly limited to an area posterior to the round ligaments. The right posterior quarter of the pelvis is

occupied by a swelling, smooth, round, and elastic, the size of a Tangerine orange. On dissection this is found to be a pyosalpinx of the right tube. Its cavity is not open towards the uterus, nor externally. The right ovary is found attached to the anterior aspect of the swelling. In the left posterior quarter of the pelvis the left Fallopian tube is found dilated, but not, at the time of examination, distended; there are dense adhesions between the tube and ovary; the fimbriated extremity of the tube is not to be found.

Uterus.—The sound passes two and a quarter inches. The external os is transverse one eighth of an inch across. The mucous membrane of the cervix and body of the uterus is of a white colour.

Other morbid conditions.—Enlarged liver and spleen; both tough and homogeneous. In the hilum of the spleen is a tract of dense cicatricial tissue with buff-coloured nodules, (?) gummata. Caseous masses in apex of left lung; a small angular calculus in pelvis of kidney.

The patient was 41 years of age, and had been twice married, but had had no children; she had a miscarriage once, when three months pregnant. There was a history almost certainly pointing to syphilis.

Case 9. *Right pyosalpinx.*—Left tube also dilated, containing brown watery fluid.

Pelvic organs.—There is old pelvic peritonitis; there are adhesions between the uterus and bladder as well as elsewhere.

The *left Fallopian tube* is dilated at its outer part. The dilatation makes a C-shaped bend with the concavity inwards, the adjoining borders of the C being limited by adhesions so as to form altogether an oval swelling three inches long and two inches broad. This lies in Douglas's pouch; there are numerous adhesions between it and the rectum and adjoining parts of the pouch, but they are so disposed as to allow of the mass being displaced out of the pouch. The fimbriated extremity cannot be distinguished.

The *left ovary* is seen beneath a broad membranous adhesion stretching from the left side of the fundus uteri to the inner border of the dilated tube. The outer end of the left ovary is firmly adherent to the tube.

The dilated left Fallopian tube contains a brown watery fluid; communication between it and the uterus is not shut off, but the channel about an inch from the uterus is extremely narrow and tortuous, admitting only a very fine bristle. The lining of the dilated portion of the tube has a pale, whitish colour.

The *right Fallopian tube* is also dilated, but forms a smaller swelling than the left. The dilated tube contains pus, and the lining of the cavity is of a deep purple colour. The tube does not communicate with the uterus. There is a swelling between the right ovary and the pyosalpinx on that side. It is separate from the tube, and contains a turbid yellow fluid. Its interior is not like that of a dilated tube, and it seems pretty certainly to be a small ovarian cyst.

Uterus.—The external os is five sixteenths of an inch across. The sound passes two and a half inches. The mucous membrane of the body of the uterus is creamy white, and covered with a reddish mucus. The mucous membrane of the cervix is slate grey.

Other morbid conditions.—Pericarditis; copious pleural effusion with carnified lung; lymph also at right base. The patient was 27 years of age. She had had dyspnœa and pain in the left side for three days. There were on admission physical signs of pleurisy with effusion; the heart's apex-beat was displaced downwards, to the right.

Case 10.—Left tube dilated, containing milky fluid. There is old pelvic peritonitis, viz. between the posterior surface of the uterus and the rectum, between the anterior surface of the uterus and the bladder, and laterally more or less between the structures projecting from the broad ligaments.

Left Fallopian tube.—The fimbriated extremity is not to be found. The outer end of the tube is firmly adherent to the ovary. The outer part of the tube is dilated so as to form a swelling three quarters of an inch in diameter. It contains a milky fluid. The tissue of the left ovary next the dilated part of the tube forms a dense white layer one eighth of an inch thick.

The finest bristle is needed to pass from the dilated part towards the uterus, and it can only be passed little by little, the canal of the tube being opened up as it is passed, so that, though the lumen of the tube is not absolutely, it is practically obliterated.

The *right Fallopian tube* is normal.

Uterus.—Sound passes one and seven eighths of an inch.

Other morbid conditions.—Cavities at apices of both lungs; kidneys granular; liver fatty.

The patient was 49 years of age, had been married twenty-two years, but had had no children or miscarriages. She was the wife of a sailor, and had been ill with lung mischief for five years.

Case 11.—Both tubes dilated.

Pelvic organs.—There is old pelvic peritonitis. The surface of the broad ligaments is studded with cysts the size of pins' heads. The fimbriated extremities of both tubes are patent. There are cheesy masses, the largest being the size of a cob-nut, in both Fallopian tubes.

The patient was 62 years of age and died of "dropsy."

Case 12.—Both tubes dilated, containing blackish watery fluid.

Pelvic organs.—The *right Fallopian tube* is dilated so as to form a swelling three fourths of an inch in diameter, open towards the uterus but closed externally. No trace of the fimbriated extremity can be found.

The *left Fallopian tube* is similarly affected. Both dilated tubes are somewhat flaccid, not tense. The lining membrane of the dilated portion of each tube is pale grey. The dilated tubes contain blackish watery fluid.

There is extensive old pelvic peritonitis involving the vesico-uterine pouch as well as other parts. Here and there are small accumulations of serous fluid imprisoned amid the adhesions.

Uterus.—The external os admits the tip of the finger. There is a narrow deep-red erosion round it. The sound passes two and three quarter inches. The lower quarter of an inch of the cervical mucous membrane is red, continuous with the erosion. The upper part of the cervical mucous membrane is pale. The arbor vitæ is well marked. The mucous membrane of the body of the uterus is red, and covered with a reddish mucus. On section, the red layer is seen to be of only linear depth.

The *ovaries* are almost inextricably bound by adhesions to neighbouring parts, but ovarian tissue can be distinctly recognised on both sides.

The *bladder* is dilated, measuring about four and three quarter inches from the inner orifice of the urethra. Its mucous membrane is marked by arborescent injected vessels. The bladder contains puriform fluid.

Other morbid conditions.—Thickening of mitral valve; dilatation and hypertrophy of left ventricle; convolutions of brain flaccid; no hæmorrhage; white softening.

The patient was 41 years of age, she was the wife of a schoolmaster, and had married at 22. Had had rheumatism; there was evidence of mitral regurgitation with cardiac hypertrophy and dilatation during life. She had a sudden attack of general convulsions and cyanosis, and died.

Case 13.—Both tubes dilated. *Contents:* Left side milky fluid; right side, dilated tube empty.

Pelvic organs. Uterus.—The sound passed three and a half inches. There is a fibroid measuring one and a quarter inches transversely by three quarters of an inch vertically in the anterior wall of the uterus. It slips about under the peritoneum on manipulation.

On opening the uterus a mucous polypus, one and five

eighths of an inch long by half an inch broad, is seen attached to the mucous membrane of the posterior wall of the body of the uterus. Its attachment is three quarters of an inch long and is narrow. The attachment is below the uterine end of the right Fallopian tube. On section numerous little points of green fluid are seen in its substance.

Two mucous polypi, the size of a threepenny piece, are also seen, one on the posterior and one on the anterior wall of the body of the uterus near the opening of the left Fallopian tube. The mucous membrane of the body of the uterus has a yellow colour.

On the left side of the uterus is a swelling two and three quarter inches in diameter, obviously containing fluid.

The left Fallopian tube is traced to the upper and anterior aspect of this. There it makes a C-shaped bend, the tube here being an inch in diameter, and ends on the swelling already mentioned.

Below, the wall of the cyst is formed by a white tissue continuous internally with the ovarian ligament. The fimbriated extremity of the left tube cannot be found.

The *right Fallopian tube* is also dilated to form a swelling one inch across; its fimbriated extremity is not seen.

The right ovary is easily distinguishable in its usual position, but matted by adhesions to the tube. The dilated tube on this side is not tense.

Further examination shows that on the right side the dilated tube communicates freely with the uterus, a bristle passing easily into it from the uterus. It is noticeable that on this side the dilated tube was empty.

On the left side the large swelling described contains a white viscid fluid. Its cavity communicates freely with the other less dilated part of the tube, and from this again a bristle can be passed to within three quarters of an inch of the uterus.

The dilated left tube, internal to the larger swelling, is an inch across.

Part of the wall of the large swelling on the left side is

thick, an eighth of an inch, part is thin. The inner surface of the swelling where the wall is thin shows the longitudinal and somewhat parallel rugæ seen on the inner surface of the dilated tubes. The inner surface, where the wall is thick, is smooth.

No trace of the left ovary is to be found. As the left ovarian ligament is traced to the inner aspect of the larger swelling mentioned, it seems probable that though part of this swelling is certainly formed by the Fallopian tube, part of it is formed by a small ovarian cyst.

The patient was 59 years old, a dressmaker; she had been married many years, and had had five miscarriages but no living children. She had been in the hospital several times before, once for hernia, and several times for chest complaints. This time she was admitted for pleuro-pneumonia and jaundice, and died in three days.

Case 14.—*Right hæmatosalpinx.*

Pelvic organs. Right side.—The fimbriated extremity of the tube cannot be found, the outer end of the tube being inseparably fixed to the ovary. About two inches from the uterus the tube expands so as to form a swelling three quarters of an inch in diameter. On opening this swelling it is found to contain blood. It is not absolutely shut off from the uterus, but the channel of communication is very narrow.

Left side.—There are numerous adhesions between the anterior surface of the ovary and the posterior part of the Fallopian tube. The fimbriated extremity of the latter is normal, and on squeezing the tube towards it blood exudes.

Uterus.—The sound passes three and one eighth inches. The mucous membrane of the body of the uterus is disintegrating in patches.

There is old pelvic peritonitis. Thin adhesions are seen between the right round ligament and the upper surface of the bladder. There are adhesions also in Douglas's pouch.

The patient was 32 years old; she had had four children (two stillborn), and died of acute pneumonia.

Case 15.—Both tubes dilated, containing viscid, creamy-white fluid.

Pelvic organs.—There is old pelvic peritonitis in the vesico-uterine pouch. Both Fallopian tubes are dilated, and hang down in Douglas's pouch, united by membranous adhesions to the back of the uterus.

The *right Fallopian tube* forms a swelling seven-eighths of an inch in diameter. Its fimbriated extremity is not seen, the outer end of the tube being inextricably blended with the ovary. The latter was not visible at first, being hidden by the dilated tube hanging over it, and by adhesions between the tube and the uterus.

The dilated tube contains a creamy-white viscid fluid. It is doubtful whether its cavity is altogether shut off from the uterus, but at all events the channel of the tube towards the uterus becomes so narrow that even with a fine bristle it cannot be traced.

The *left Fallopian tube* is similarly affected, but at its widest part is only half an inch across.

Uterus.—The sound passes two and five eighths inches. The external os is five sixteenths of an inch across. There is a soft polypus half an inch long growing from the cervical mucous membrane. There is a second similar polypus, the size of a split pea, at the fundus. There are ovules of Naboth in the cervix, and in the body of the uterus near the fundus is a cyst exactly like an ovule of Naboth. There is a calcified, sessile, subperitoneal fibroid, one inch in diameter, on the anterior surface of the uterus to the left of the middle line.

The patient was 54 years old; she had been married thirty-seven years, and had had four children and three miscarriages. Thirty years ago she was in the hospital, under Dr. Ramsbotham, "with inflammation of the womb" for four months. She had had pain in the lumbar region for seven months before death, which was due to "spinal disease." Menstruation ceased at forty-five; but she had been subject to a copious "discharge from the womb" ever since.

Case 16.—*Left pyosalpinx.*

Pelvic organs.—There is old pelvic peritonitis. There are numerous thin adhesions between the anterior surface of the uterus and the posterior part of the bladder. There are also some less extensive old adhesions in Douglas's pouch. The fimbriated extremities of the tubes cannot be made out, the outer end of each tube being firmly attached to the corresponding ovary.

Left Fallopian tube.—Immediately outside the uterus the left tube dilates to form a swelling measuring half an inch from before back, and one inch in vertical measurement. The dilatation ceases abruptly one and a quarter inches from the uterus. The calibre of the tube for the next one and five-eighths of an inch is normal; it then dilates to form a second swelling measuring one and a quarter inches long by half an inch broad, the tube ending by being firmly adherent to the ovary. On section the inner swelling is found to have two compartments filled with green pus. There is no communication between this cavity and the uterus, or between it and the undilated part of the tube immediately outside it. The outer swelling contains milky fluid, also shut in on both sides.

Right Fallopian tube.—There is a swelling in the course of the tube about the size of a grape distant three quarters of an inch from the corresponding ovary. On section it is found to contain several hard white bodies, the size of small shot. It cannot be exactly made out whether the cavity containing these white bodies is a dilated portion of the Fallopian tube or not. As the tube, however, cannot be traced past this cavity, it seems probable that it is a localised dilatation of the right Fallopian tube.

The *uterus* is somewhat acutely anteflexed. The external os is that of a virgin uterus. There is no real obstruction at the angle of flexion, the direction of the canal only being altered without obstruction to its channel.

The patient was 32 years of age, a needlewoman, married, and had no children. Had never had any

serious illness till a fortnight before admission, when she was seized with pain in the head and shivering. She had some kind of fit. She was delirious on admission, and died in six days. Evidence of tubercular meningitis was found on post-mortem examination.

Case 17. *Double hæmatosalpinx.*—Both Fallopian tubes are dilated. There are membranous adhesions between the distended tubes and the posterior surface of the uterus.

Right Fallopian tube.—The outer part of the tube is most dilated; its diameter at the widest part is one and five-eighths inches.

The *left Fallopian tube* is similarly affected, but it is not quite so much dilated as the right, being only one and a quarter inches wide. Both the dilated tubes contain blood, and both are open towards the uterus, but closed at their outer extremities. No trace of the fimbriated extremities can be found.

Uterus.—The sound passes two and seven eighths inches. The external os is three sixteenths of an inch across. On opening the uterus the mucous membrane of the cervix is seen to be greyish green in colour. The body of the uterus is lined by a menstrual decidua, which, on section, is seen to be about three sixteenths of an inch thick above, thinning off gradually towards the internal os, where it is lost. There are two broad ligament cysts on the left side; one is the size of a currant, and is attached by a thin stalk to the anterior surface of the left dilated tube at its outer part; the other is the size of a small grape, and is in the thickness of the broad ligament near the attachment of that just mentioned. The ovaries are easily distinguishable on both sides.

The patient was 29 years of age. She died after two days' illness, it was believed of phosphorus poisoning. There is no record as to whether she was married, or had had children. It is stated in the notes that menstruation had been regular.

Remarks.—It will be seen on classifying the cases that *five were cases of pyosalpinx.* On reviewing them *seriatim* we find that: In one case (No. 5) there was double pyosalpinx. In two cases (Nos. 8 and 16) the pyosalpinx was unilateral. In one case (No. 2) the pyosalpinx was combined with hydro- and hæmato-salpinx of the opposite side, and in one case (No. 9) there was hydrosalpinx of the opposite side.

Four were cases of hæmatosalpinx. Of these, in one case there was double hæmatosalpinx (No. 17). In one case there was right hæmatosalpinx (No. 14). In one case there was hydrosalpinx of the opposite side (No. 6), and in one case (No. 2) there was hydrosalpinx of the same side, and pyosalpinx of the opposite side..

Hydrosalpinx alone, uncombined with pyo- or hæmatosalpinx, was found in eight cases. In six of these the condition existed on both sides (Nos. 3, 4, 7, 12, 13, 15). In two cases it was unilateral (Nos. 1 and 10).

In one case the dilated tubes contained cheesy masses. This should probably be classed as a pyosalpinx that had undergone natural cure.

Taking as the essential characters of a normal Fallopian tube the presence of an open fimbriated extremity, and of a channel in communication with the cavity of the uterus, it will be seen that in only two cases (of those where one tube only was dilated) could the opposite tube be described as normal (Nos. 10 and 14).

This fact is significant as indicating that the cause of tubal disease is one which, except it may be for accidental circumstances, tends to affect both tubes equally.

Inflammation of the lining membrane of the uterus would be a cause of this kind; that is, one which, at starting, would tend to spread equally to both tubes.

When inflammation has spread along the Fallopian tube to its outer opening, the fimbriated extremity of the tube will be obliterated by the adhesive peritonitis set up in its vicinity.

Whether, subsequently, the tube becomes dilated or

not seems, to a certain extent, to be a matter of accident, and to depend on whether a free communication is maintained with the uterus or not.

Looking at the ages of the patients from whom the specimens were taken, we find that the youngest was 18, the oldest 62. The average age is 42·8.

In ten cases a record as to whether the patient had had children or not was obtained. In three of these the patient had had neither children nor miscarriages; in seven she had had either children or miscarriages, as follows:

	Children.		Miscarriages.
Case 1 . .	1	...	1
„ 6 . .	6	...	0
„ 7 . .	6	...	0
„ 8 . .	0	...	1
Case 13 . .	0	...	5
„ 14 . .	4	...	0
„ 15 . .	4	...	3

In seven cases no information on this point could be obtained.

In those cases where the women had had children or miscarriages, obliteration of the tubes, when bilateral, as it was in six out of the seven cases referred to, must have been subsequent to the last pregnancy.

Probably in these cases the sequence of events was this: endometritis in connection with the last labour or abortion, salpingitis, pelvic peritonitis, and obliteration of the fimbriated extremities of the tubes. But endometritis arising apart from labour or abortion may cause salpingitis, and it may be either of gonorrhœal or of simple origin.

That pyosalpinx may arise where labour, abortion, and gonorrhœa are definitely excluded is proved by a case within my own knowledge (but not in this series), where when the patient came under observation the hymen was perfect, and was torn when at length vaginal examination was resorted to. Abdominal section being subsequently performed by the physician under whose care the patient was, a pyosalpinx was found.

As regards the size of the swellings formed by dilated tubes: In the series of specimens described in this paper it varied from that of a large orange (Case 2, the maximum) to that of a cob-nut in Case 11, where cheesy masses were found in the tubes. It is noticeable that the largest specimen in the series is also the only one where any doubt existed as to the tumours really being dilated tubes. I think everyone who has examined a specimen as large as a large orange, or larger, with a view to decide if it be a dilated tube or not, will admit the great difficulty, and in many cases the impossibility, of coming to any certain conclusion. When there are swellings of this size at the sides of the pelvis, glued into a mass by adhesions of ligamentous consistence, it is useless to expect to be able to trace the continuity of the Fallopian tube from the uterus, and the only reason for supposing the swellings to be dilated tubes must be failure to find any other trace of the tubes.

It might be thought that finding the ovaries would aid in deciding the point at issue, and so no doubt it would, if they could be found. In such cases, however, as have been referred to, no trace of the ovaries can usually be seen. And, if it is difficult on careful dissection out of the body to decide in such cases on the nature of the tumour, it must be almost impossible in the case of the larger swellings to come to any certain conclusion during an abdominal section.

In fourteen out of the seventeen cases both ovaries could be distinctly recognised; in one case (No. 2) no trace of either ovary could be found; in one case (No. 3) the right ovary was found, but the left could not be found; in one case (No. 13) the right ovary was recognised, and the left probably formed part of the cyst described in the notes of the specimen.

As to the possibility of removing such diseased tubes as those in the series of cases recorded in this paper: In one case (No. 2) removal of the tubes during life by operation would have been absolutely impossible; in one case (No.

16), owing to the position of the diseased tube it could only have been removed by removing at the same time the body of the uterus; in the remaining fifteen cases removal of the diseased tubes would have been possible in all, and easy in most.

The general morbid conditions, associated with the local disease, present so much diversity as to throw no light on the etiology or pathology of dilatation of the Fallopian tube.

As regards the local morbid conditions found associated with dilatation of the tubes:

In *all* the cases there was pelvic peritonitis. In three cases (Nos. 1, 13, 15) there were mucous polypi. In three cases (Nos. 6, 13, 15) there were subperitoneal fibroids.

In only six cases was there anything observed which could be regarded as an indication of inflammation of the mucous membrane of the uterus or vagina. Thus in Case 3 there were ulcers of the vaginal mucous membrane, and the upper part of the mucous membrane of the body of the uterus was congested.

In Case 5 the mucous membrane of the body of the uterus was greenish. In Case 9 the mucous membrane of the cervix was slate grey. In Case 12 there was a deep red erosion round the external os, and the mucous membrane of the cervix for a little way upwards was red. In Case 13 the mucous membrane of the body of the uterus was yellow. In Case 17 the mucous membrane of the cervix was greyish green. It is noticeable that in none of the cases was there malignant disease of the pelvic or other organs.

As regards the existence of communication between the dilated tubes and the cavity of the uterus:

In Cases 3, 4, 5, 7, 10, 12, 14, 17, the dilated tubes communicated with the uterus. In Cases 1, 2, 6, 8, 15, 16, the dilated tubes did not communicate with the uterus. In Cases 9 and 13 (cases where the tubes were dilated on both sides) there was communication with the uterus on one side, but not on the other.

In one case (No. 5) rupture of the tubes was the cause of death, and in all probability the same is true of Case 2. These were both cases of pyosalpinx.

It seems very doubtful whether any sharp line of demarcation should be drawn between cases of hydro-salpinx and pyosalpinx; or whether they should not rather be regarded as stages of the same disease. This view is borne out by the fact that in some of the cases the contents of the dilated tubes were not clear fluid and were not pus, but were milky, occupying, as it were, an intermediate position.

It seems probable that hæmatosalpinx is the result of an accidental hæmorrhage into a tube, the fimbriated extremity of which has been previously obliterated, or in some cases into a pre-existing hydro- or pyo-salpinx.

Note.—None of the seventeen cases of dilated tubes came from the obstetric wards of the hospital, though some of the 100 cases examined came from those wards. On this point I should like to say that unless I could get the pelvic organs in a complete condition for examination I did not include them in my series, and it is within my recollection that some fatal cases of abdominal section, certainly one, and I think two or three others, were not included in my list because the organs were not in a complete state. One of these was, to the best of my recollection, a case where a diseased tube had been removed. The 100 cases were taken as nearly as possible consecutively. At the London Hospital, as elsewhere, cases occur where no post-mortem examination is allowed; these of course had to be omitted. In a very few cases where, for instance, the post-mortem examination was made at an unusual time a case was missed occasionally. The series, however, was as consecutive as practically any such series can be.

Case.	Age.	Children.	Miscarriages.	Size of tumour.	Contents of dilated tube.	Communication between dilated tube and uterus.	Possibility of removal.	One or both tubes dilated.	Ovaries recognisable or not.	Pelvic peritonitis.	Mucous polypi.	Fibroids of uterus.	Condition of uterine mucous membrane.	General morbid conditions found.
1	51	1	1	Large walnut	Clear yellow fluid	Closed	Could have been easily removed	Left only	Both seen	Present	1 present	None	—	Mitral disease, ascites, œdema of legs, enlargement of liver and kidneys.
2	40	No note	No note	Large orange	*Right*, pus. *Left*, blood and brown watery fluid	,,	Absolutely impossible to have removed them	Both	No trace of either seen	,,	None	,,	—	General purulent peritonitis, acute pericarditis, right pleurisy, œdema of lungs.
3	50	,,	,,	Hen's egg	Clear yellow fluid	Open	Removal possible	,,	Right found; left not found	,,	,,	,,	Upper two thirds of uterine mucous membrane congested, lower third pale, ulcers in vagina	Cirrhosis of liver, peri-hepatitis, ascites, pleurisy.
4	44	,,	,,	1 inch in diameter	Turbid fluid, not purulent	,,	,,	,,	Both seen	,,	,,	,,	—	Aortic aneurysm.
5	18	0	0	Dilated tube. Had burst	Pus	,,	,,	,,	,,	,,	,,	,,	Greenish	General peritonitis.
6	48	6	0	*Left*, 1¼ in. × 1 in. *Right*,	*Left*, blood. *Right*, thin yellow fluid	Closed	,,	,,	,,	,,	,,	Present	—	Perforation of cæcum.

														rent; cellulitis right leg.
8	41	0	1	Tangerine orange	*Right*, pus. *Left*, empty	Closed	„	„	„	„	„	„	—	Enlarged liver and spleen probably syphilitic, caseous masses apex left lung.
9	27	No note	No note	*Left*, 3 ins. long and 2 ins. broad. *Right*, rather smaller	*Right*, pus. *Left*, brown watery fluid	Open one side closed the other	„	„	„	„	„	„	Mucous membrane of cervix, slate grey	Pericarditis pleurisy with effusion.
10	49	0	0	$\frac{3}{4}$ inch in diameter	Milky fluid	Open	„	Left only	„	„	„	„	—	Cavities apices of both lungs, kidneys granular, liver fatty.
11	62	No note	No note	Size of cob-nut	Cheesy	Doubtful	„	Both	„	„	„	„	—	" Dropsy."
12	41	„	„	Both $\frac{3}{4}$ inch in diameter	Blackish watery fluid	Open	„	„	„	„	„	„	Erosion around external os, adjoining mucous membrane of cervix red Yellow	Morbus cordis.
13	59	0	5	*Right*, 1 inch in diameter. *Left*, the same	*Right*, empty. *Left*, milky fluid	Open one side, closed the other	„	„	Right found. Left probably formed part of cyst described	„	Present 1 large one, 2 smaller	1 present $1\frac{1}{4} \times \frac{3}{4}$ inch		Pleuro-pneumonia, jaundice

Case.	Age.	Children.	Miscarriages.	Size of tumour.	Contents of dilated tube.	Communication between dilated tube and uterus.	Possibility of removal.	One or both tubes dilated.	Ovaries recognisable or not.	Pelvic peritonitis.	Mucous polypi.	Fibroids of uterus.	Condition of uterine mucous membrane.	General morbid conditions found.
14	32	4	0	*Right*, $\frac{3}{4}$ inch in diameter	Blood	Open	Removal possible	Right only	Both seen	Present	None	None	—	Acute pneumonia.
15	54	4	3	*Right*, $\frac{7}{8}$ inch in diameter. *Left*, rather smaller	Viscid creamy fluid	Closed	,,	Both	,,	,,	Present 1 in cervix, 1 at fundus	1 present an inch in diameter, partly calcified	—	"Spinal disease."
16	32	0	0	*Left*, $1\frac{1}{4}$ in. × $\frac{1}{2}$ inch	Pus	,,	Only possible if body of uterus removed at same time	Left only	,,	,,	None	None	—	Tubercular meningitis.
17	29	No note	No note	*Right*, $1\frac{5}{8}$ in. in diameter. *Left*, $1\frac{1}{4}$ inch	Blood	Open	Removal possible	Both	,,	,,	,,	,,	Mucous membrane of cervix greyish green	Believed to have died of phosphorus poisoning.